

WHAT IS CLAIMED IS:

1. A composition comprising an isolated *Bacillus* strain, wherein said strain (a) produces lactic acid, (b) has an optimal growth temperature of in the range of 20-44⁰C, and (c) grows in a pH range of 2-5.
- 5 2. The composition of claim 1, wherein said strain produces L(+) dextrorotatory lactic acid and produces spores resistant to temperatures of up to approximately 90⁰C.
3. The composition of claim 1, wherein said strain is selected from the group consisting of *Bacillus coagulans*, *Bacillus stereothermophilus*, *Bacillus thermoacidurans*,
10 *Lactobacillus sporogenes*, *Bacillus smithii*, *Bacillus dextrolacticus*, *Lactobacillus cereale*, and *Bacillus recemilacticus*.
4. The composition of claim 1, wherein said strain is *Bacillus coagulans*.
5. The composition of claim 1, wherein said strain is selected from the group consisting of *Bacillus coagulans* GBI-1, *Bacillus coagulans* GBI-20, *Bacillus coagulans* GBI-30 and *Bacillus coagulans* GBI-40.
- 15 6. An extracellular product derived from the composition of claim 1.
7. A composition comprising an isolated *Bacillus* strain, wherein said strain produces lactic acid and has an optimal growth temperature of in the range of 20-25 ⁰C.
8. The composition of claim 7, wherein said strain produces L(+) dextrorotatory lactic acid and produces spores resistant to temperatures of up to approximately 90⁰C.
- 20 9. The composition of claim 7, wherein said strain is selected from the group consisting of *Bacillus coagulans*, *Bacillus stereothermophilus*, *Bacillus thermoacidurans*,
Lactobacillus sporogenes, *Bacillus smithii*, *Bacillus dextrolacticus*, *Lactobacillus cereale*, and *Bacillus recemilacticus*.
10. The composition of claim 7, wherein said strain is *Bacillus coagulans*.
- 25 11. The composition of claim 7, wherein said strain is *Bacillus coagulans* GBI-20.
12. An extracellular product derived from the composition of claim 7.

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13. A composition comprising an isolated *Bacillus* strain, wherein said strain produces lactic acid and has an optimal growth temperature of in the range of 25-35 °C.
14. The composition of claim 13, wherein said strain produces L(+) dextrorotatory lactic acid and produces spores resistant to temperatures of up to approximately 90°C.
- 5 15. The composition of claim 13, wherein said strain is selected from the group consisting of *Bacillus coagulans*, *Bacillus stereothermophilus*, *Bacillus thermoacidurans*, *Lactobacillus sporogenes*, *Bacillus smithii*, *Bacillus dextralacticus*, *Lactobacillus cereale*, and *Bacillus recemilacticus*.
16. The composition of claim 13, wherein said strain is *Bacillus coagulans*.
- 10 17. The composition of claim 13, wherein said strain is *Bacillus coagulans* GBI-30.
18. An extracellular product derived from the composition of claim 13.
19. A composition comprising an isolated *Bacillus* strain, wherein said strain produces lactic acid and has an optimal growth temperature of in the range of 35-40 °C.
- 15 20. The composition of claim 19, wherein said strain produces L(+) dextrorotatory lactic acid and produces spores resistant to temperatures of up to approximately 90°C.
21. The composition of claim 19, wherein said strain is selected from the group consisting of *Bacillus coagulans*, *Bacillus stereothermophilus*, *Bacillus thermoacidurans*, *Lactobacillus sporogenes*, *Bacillus smithii*, *Bacillus dextralacticus*, *Lactobacillus cereale*, and *Bacillus recemilacticus*.
- 20 22. The composition of claim 19, wherein said strain is *Bacillus coagulans*.
23. The composition of claim 19, wherein said strain is *Bacillus coagulans* GBI-40.
24. An extracellular product derived from the composition of claim 19.
25. A method of inhibiting a pathogenic bacterial infection, comprising contacting an infected site with the composition of claim 1.
- 25 26. A method of inhibiting a pathogenic bacterial infection, comprising contacting an infected site with a *Bacillus coagulans* composition.
27. The method of claim 26, wherein said infected site is in the gastrointestinal tract.

28. The method of claim 26, wherein ~~the~~^B said infected site is skin or a mucous membrane.

29. The method of claim 26, wherein ~~the~~^B said composition comprises a viable vegetative bacterial cell.

30. The method of claim 26, wherein ~~the~~^B said composition comprises a bacterial spore.

31. The method of claim 26, wherein ~~the~~^B said compositions comprises an extracellular product of *Bacillus coagulans*.

32. The method of claim 26, wherein ~~the~~^B said composition is administered at a dose of 10 milligrams to 10 grams per day.

33. The method of claim 29, wherein ~~the~~^B said composition is administered at a dose of 1×10^2 to 1×10^{14} viable vegetative bacterial cells per day.

34. The method of claim 30, wherein ~~the~~^B said composition is administered at a dose of 1×10^2 to 1×10^{14} spores per day.

35. The method of claim 26, wherein ~~the~~^B said composition is administered orally, buccally topically, vaginally, nasally, ocularly, or otically.